

PRELIMINARY AMENDMENT

99 computational elements for a first functional mode of a plurality of functional modes in response to the first subset of configuration information, and the interconnection network further capable of reconfiguring the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes in response to the second subset of configuration information, the first functional mode being different than the second functional mode.

6. (Once Amended) The system of claim 1, further comprising:
a memory coupled to the plurality of heterogeneous computational elements and to the interconnection network, the memory capable of storing the first set of configuration information.

10 7. (Once Amended) The system of claim 1, wherein the first set of configuration information is stored in a second plurality of heterogeneous computational elements configured for a memory functional mode.

8. (Once Amended) The system of claim 1, wherein the first set of configuration information is stored as a configuration of the plurality of heterogeneous computational elements.

14. (Once Amended) The system of claim 1, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two of the following corresponding functions: memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

11 15. (Once Amended) The system of claim 1, wherein the plurality of functional modes comprises at least two of the following functional modes: linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

PRELIMINARY AMENDMENT

17. (Once Amended) The system of claim 1, further comprising:

a controller coupled to the plurality of heterogeneous computational elements and to the interconnection network, the controller capable of directing and scheduling the configuration of the plurality of heterogeneous computational elements for the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

18. (Once Amended) The system of claim 17, wherein the controller is further capable of timing and scheduling the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data.

912 19. (Once Amended) The system of claim 17, wherein the controller is further capable of selecting the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the first set of configuration information.

20. (Once Amended) The system of claim 1, further comprising:

a second plurality of heterogeneous computational elements coupled to the interconnection network, the second plurality of heterogeneous computational elements configured for a controller operating mode, the second plurality of heterogeneous computational elements capable of directing and scheduling the configuration of the plurality of heterogeneous computational elements for the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

21. (Once Amended) The system of claim 20, wherein the second plurality of heterogeneous computational elements is further capable of timing and scheduling the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data.

PRELIMINARY AMENDMENT

Q12 22. (Once Amended) The system of claim 20, wherein the second plurality of heterogeneous computational elements is further capable of selecting the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the first set of configuration information.

Q13 24. (Once Amended) The system of claim 23, wherein the plurality of operating modes of the mobile station comprises at least two of the following modes: a mobile telecommunication mode, a personal digital assistance mode, a multimedia reception mode, a mobile packet-based communication mode, and a paging mode.

32. (Once Amended) A method for adaptive configuration, the method comprising:
receiving a first set of configuration information, the first set of configuration information comprising a first subset of configuration information and a second subset of configuration information;

Q14 in response to the first subset of configuration information, configuring through an interconnection network a plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes, a first computational element of the plurality of heterogeneous computational elements having a first fixed architecture and a second computational element of the plurality of heterogeneous computational elements having a second fixed architecture, the first fixed architecture being different than the second fixed architecture; and

in response to the second subset of configuration information, reconfiguring through the interconnection network the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes, the first functional mode being different than the second functional mode.

Q15 38. (Once Amended) The method of claim 32, further comprising:
storing the first set of configuration information in a second plurality of heterogeneous computational elements configured for a memory functional mode.

PRELIMINARY AMENDMENT

915 39. (Once Amended) The method of claim 32, further comprising:
storing the first set of configuration information as a configuration of the plurality of heterogeneous computational elements.

45. (Once Amended) The method of claim 32, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two of the following corresponding functions: memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

916 46. (Once Amended) The method of claim 32, wherein the plurality of functional modes comprises at least two of the following functional modes: linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

917 52. (Once Amended) The method of claim 51, wherein the plurality of operating modes of the mobile station comprises at least two of the following modes: a mobile telecommunication mode, a personal digital assistance mode, a multimedia reception mode, a mobile packet-based communication mode, and a paging mode.

63. (Once Amended) A method for adaptive configuration, the method comprising:
transmitting a first set of configuration information, the first set of configuration information comprising a first subset of configuration information and a second subset of configuration information;

918 wherein when the first set of configuration information has been received, an interconnection network coupled to a plurality of heterogeneous computational elements is capable of configuring the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes in response to the first subset of configuration information, and the interconnection network further capable of reconfiguring the plurality of heterogeneous computational elements for a second functional mode of the plurality of

PRELIMINARY AMENDMENT

functional modes in response to the second subset of configuration information, the first functional mode being different than the second functional mode; and

wherein the plurality of heterogeneous computational elements include a first computational element and a second computational element, the first computational element having a first fixed architecture and the second computational element having a second fixed architecture, the first fixed architecture being different than the second fixed architecture.

69. (Once Amended) The method of claim 63, further comprising:
accessing the first set of configuration information in a second plurality of heterogeneous computational elements configured for a memory functional mode.

75. (Once Amended) The method of claim 63, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two the following corresponding functions: memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

76. (Once Amended) The method of claim 63, wherein the plurality of functional modes comprises at least two of the following functional modes: linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

89. (Once Amended) An adaptive integrated circuit, comprising:
a plurality of sets of configuration information, the plurality of sets of configuration information comprising a first set of configuration information and a second set of configuration information;

a plurality of reconfigurable matrices, the plurality of reconfigurable matrices including a plurality of heterogeneous computation units, each heterogeneous computation unit of the plurality of heterogeneous computation units formed from a selected configuration, of a plurality of configurations, of a plurality of fixed computational elements, the plurality of fixed computational elements including a first computational element having a first architecture and a

PRELIMINARY AMENDMENT

second computational element having a second architecture, the first architecture distinct from the second architecture, the plurality of heterogeneous computation units coupled to an interconnect network and reconfigurable in response to the plurality of sets of configuration information; and

a matrix interconnection network coupled to the plurality of reconfigurable matrices, the matrix interconnection network capable of configuring the plurality of reconfigurable matrices in response to the first set of configuration information for a first operating mode and to reconfigure the plurality of reconfigurable matrices in response to the second set of configuration information for a second operating mode.

90. (Once Amended) The adaptive integrated circuit of claim 89, further comprising:
a controller coupled to the plurality of reconfigurable matrices, the controller capable of providing the plurality of sets of configuration information to the reconfigurable matrices and to the matrix interconnection network.

92/ 91. (Once Amended) An adaptive integrated circuit, comprising:
a set of configuration information, the set of configuration information comprising a first subset of configuration information and a second subset of configuration information;
a plurality of heterogeneous computational elements, a first computational element of the plurality of heterogeneous elements having a first fixed architecture and a second computational element of the plurality of heterogeneous elements having a second fixed architecture, the first fixed architecture being different than the second fixed architecture;
an interconnection network coupled to the plurality of heterogeneous computational elements, the interconnection network capable of configuring the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes in response to the first subset of configuration information, and the interconnection network further capable of reconfiguring the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes in response to the second subset of configuration information, the first functional mode being different than the second functional mode;
wherein a first subset of the plurality of heterogeneous computational elements is configured for a controller operating mode, the controller operating mode comprising at least one

PRELIMINARY AMENDMENT

of the following functions: directing configuration and reconfiguration of the plurality of heterogeneous computational elements, selecting the first subset of configuration information and the second subset of configuration information from a singular bit stream containing data commingled with the set of configuration information, and scheduling the configuration and reconfiguration of the plurality of heterogeneous computational elements with corresponding data; and

wherein a second subset of the plurality of heterogeneous computational elements is configured for a memory operating mode for storing the set of configuration information.

92. (Once Amended) The adaptive integrated circuit of claim 91, wherein the first subset of the plurality of heterogeneous computational elements and the second subset of the plurality of heterogeneous computational elements are distributed among the plurality of heterogeneous computational elements.

93. (Once Amended) An adaptive integrated circuit, comprising:
 a set of configuration information, the set of configuration information including a first subset of configuration information and a second subset of configuration information;
 a plurality of heterogeneous computational elements, a first computational element of the plurality of heterogeneous computational elements having a first fixed architecture and a second computational element of the plurality of heterogeneous computational elements having a second fixed architecture of a plurality of fixed architectures, the first fixed architecture being different than the second fixed architecture, and the plurality of fixed architectures comprising at least two of the following functions: memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability; and
 an interconnection network coupled to the plurality of heterogeneous computational elements, the interconnection network capable of configuring the plurality of heterogeneous computational elements for a first functional mode of a plurality of functional modes in response to the first subset of configuration information, and the interconnection network further capable of reconfiguring the plurality of heterogeneous computational elements for a second functional mode of the plurality of functional modes in response to the second subset of configuration information, the first functional mode being different than the second functional mode, and the

PRELIMINARY AMENDMENT

plurality of functional modes comprising at least two of the following functional modes: linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

Q21 94. (Once Amended) An adaptive integrated circuit, comprising:
configuration information;
a plurality of fixed and differing computational elements; and
an interconnection network coupled to the plurality of fixed and differing computational elements, the interconnection network capable of responding to the configuration information to configure and reconfigure the plurality of fixed and differing computational elements for a plurality of functional modes.

Q22 96. (Once Amended) The adaptive integrated circuit of claim 94, wherein the plurality of functional modes comprises at least two of the following functional modes: linear algorithmic operations, non-linear algorithmic operations, finite state machine operations, controller operations, memory operations, and bit-level manipulations.

Q23 99. (Once Amended) The adaptive integrated circuit of claim 94, wherein the plurality of fixed and differing computational elements are selected from a plurality of specific architectures, the plurality of specific architectures comprising at least two of the following functions: memory, addition, multiplication, complex multiplication, subtraction, configuration, reconfiguration, control, input, output, and field programmability.

REMARKS

The present preliminary amendment has been submitted in order to make minor changes in the claims. Minor changes were also made in the Detailed Description section of the specification. No new matter has been entered with this preliminary amendment.

If there is any matter that the Examiner would like to discuss, the Examiner is invited to contact the undersigned representative at the telephone number set forth below.